

IN THE CLAIMS:

Please amend Claims 1, 12 and 23-28 as follows.

1. (Currently Amended) An image processing apparatus for producing a virtual space for walk-through, said apparatus comprising:

holding means for holding plural pieces of frame data constituting a moving image captured using a capture device mounted on a moving object, associated with position data obtained based on GPS, that indicate a position at which each piece of frame data is captured;

extraction means for extracting successive frame data whose position data nearly matches, from said plural pieces of frame data held by said holding means;

deletion means for deleting all frame data of the extracted successive frame data except for one frame data; and

associating means for associating the frame data that has not been deleted by said deletion means with a position on a map based on the position data of said frame data.

2-3. (Cancelled)

4. (Previously Presented) The apparatus according to claim 1,
wherein said holding means holds frame data of moving images captured with a plurality of moving capture devices mounted on the moving object, and

said apparatus further comprises generation means for generating panoramic

images from the frame data captured by the plurality of capturing devices.

5. (Previously Presented) The apparatus according to claim 1, further comprising:
setting means for setting sampling intervals of frame data,

wherein said extraction means extracts frame data of frames having position data that is separated by a distance that is shorter than a distance corresponding to the sampling intervals set by said setting means.

6-11. (Cancelled)

12. (Currently Amended) An image processing method for producing a virtual space for walk-through, said method comprising the steps of:

extracting successive frame data, determined to have been captured at substantially a same position, obtained from holding means which holds plural pieces of frame data constituting a moving image captured using a capture device mounted on a moving object, wherein said holding means stores each of the plural pieces of frame data associated with position data obtained based on GPS, that indicate a position at which each piece of frame data is captured, and said extraction step extracts successive frame data matching in position data;

deleting all frame data of the extracted successive frame data except for one frame data; and

associating the frame data that has not been deleted by said deletion step with a

position on a map based on the position data of said frame data.

13-14. (Cancelled)

15. (Previously Presented) The method according to claim 12,
wherein said holding means holds frame data of moving images captured with a
plurality of moving capture devices mounted on the moving object, and
said method further comprises a generation step of generating panoramic images
from the framed data captured by the plurality of capturing devices.

16. (Previously Presented) The method according to claim 12, further comprising
the step of:

setting sampling intervals of frame data,
wherein said extracting step extracts frame data for frames having position data
that is separated by a distance that is shorter than a distance corresponding to the sampling
intervals set in said setting step.

17-22. (Cancelled)

23. (Currently Amended) A computer-executable program, stored on a computer
readable medium, which makes a computer execute an image processing apparatus for

producing a virtual space for walk-through, comprising:

~~a code of an extracting step of~~ code for extracting successive frame data, having position data that nearly matches, from holding means which holds plural pieces of frame data constituting a moving image captured using a capture device mounted on a moving object, associated with position data obtained based on GPS, that indicate a position at which each piece of frame data is captured;

~~a code of a deleting step of~~ code for deleting all frame data of the extracted successive frame data except for one frame data; and

~~a code of an associating step of~~ code for associating the frame data that has not been deleted by said ~~deletion step~~ code for deleting with a position on a map based on the position data of said frame data.

24. (Currently Amended) A storage medium storing a computer-executable program which makes a computer execute an image processing apparatus for producing a virtual space for walk-through, wherein said program comprises:

a code of an extracting step of extracting successive frame data, having position data that nearly matches, from holding means which holds plural pieces of frame data constituting moving image captured by using a capture device mounted on a moving object, associated with position data obtained based on GPS, that indicate a position at which each piece of frame data is captured;

a code of a deleting step of deleting all frame data of the extracted successive frame data except for one frame data; and

a code of an associating step of associating the frame data that has not been deleted by said deletion step with a position on a map based on the position data of said frame data.

25. (Currently Amended) An image processing apparatus for producing a virtual space for walk-through, said apparatus comprising:

holding means for holding plural pieces of frame data constituting a moving image, obtained from image data input while visiting a plurality of positions;

determination means for comparing two pieces of successive frame data and determining whether ~~or not~~ the two pieces of successive frame data have been captured at a same position;

extraction means for extracting frame data determined by said determination means to have been captured at the same position from said plural pieces of frame data held by said holding means;

deletion means for deleting frame data overlapping another piece of frame data extracted by said extraction means; and

storage means for storing, after associating with a position on a map, frame data remaining after a deleting process performed by said deletion means,

wherein said determination means computes least squares error between two pieces of successive frame data, and determines that the two pieces of successive frame data match each other when the computed least squares error is equal to or smaller than a predetermined value.

26. (Currently Amended) An image processing method for producing a virtual space for walk-through, said method comprising the steps of:

comparing two pieces of successive frame data obtained from holding means which holds plural pieces of frame data constituting a moving image, obtained from image data captured at a plurality of positions, and determining whether or not the two pieces of successive frame data have been captured at a same position,

extracting frame data determined in said determining step to have been captured at the same position;

deleting frame data overlapping another piece of frame data extracted in an extracting step; and

storing frame data remaining after said deleting step, after associating the frame data remaining after said deletion step with a position on a map,

wherein said determining step computes least squares error between two pieces of successive frame data, and determines that the two pieces of successive frame data match each other when the computed least squares error is equal to or smaller than a predetermined value.

27. (Currently Amended) A computer-executable program, stored on a computer readable medium, which makes a computer execute an image processing apparatus for producing a virtual space for wald-through, comprising:

code for comparing two pieces of successive frame data obtained from holding

means which holds plural pieces of frame data constituting a moving image, obtained from image data captured at a plurality of positions, and determining whether the two pieces of successive frame data have been captured at a same position;

code for extracting frame data determined in said determining step to have been captured at the same position;

code for deleting frame data overlapping another piece of frame data extracted in an extracting step; and

code for storing frame data remaining after said deleting step, after associating the frame data remaining after said deleting step with a position on a map,

wherein said determining step computes least squares error between two pieces of successive frame data, and determines that the two pieces of successive frame data match each other when the computed least squares error is equal to or smaller than a predetermined value.

28. (Currently Amended) A storage medium storing a computer-executable program which makes a computer execute an image processing apparatus for producing a virtual space for walk-through, wherein the program comprises:

code for comparing two pieces of successive frame data obtained from holding means which holds plural pieces of frame data constituting a moving image, obtained from image data captured at a plurality of positions, and determining whether or not the two pieces of successive frame data have been captured at a same position;

code for extracting frame data determined in said determining step to have been

captured at the same position;

code for deleting frame data overlapping another piece of frame data extracted in an extracting step; and

code for storing frame data remaining after said deleting step, after associating the frame data remaining after said deleting step with a position on a map,

wherein said determining step computes least squares error between two pieces of successive frame data, and determines that the two pieces of successive frame data match each other when the computed least squares error is equal to or smaller than a predetermined value.

29-30. (Cancelled)